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1. (Original) A method of extending a spanning hierarchical protection tree in a mesh network comprising:

at a current node, receiving an invitation to become a child of a first adjacent node;

if a minimum capacity along a protection path from said current node to a root node of the spanning hierarchical protection tree which visits the first adjacent node is greater than a minimum capacity of any existing protection path from said current node to said root node:

designating said first adjacent node as a primary parent of said current node in said tree; and

from said current node, sending an invitation to become a child of said current node in said tree to each adjacent node of said current node that is not said first adjacent node.

2. (Original) The method of claim 1, further comprising:

if said minimum capacity along said protection path from said current node to said root node which visits the first adjacent node is not greater than said minimum capacity of any existing protection path from said current node to said root node:

designating said first adjacent node as a backup parent of said current node in said tree.

3. (Original) The method of claim 2, wherein said backup parent is one of a number of backup parents of said current node, each one of said number of backup parents having a priority based on a minimum capacity of a protection path from said current node to said root node which visits said one of said number of backup parents, with a higher minimum capacity being associated with a higher priority.

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4. (Original) The method of claim 3, further comprising ensuring that said designating of said first adjacent node as a primary parent of said current node does not introduce a loop into said spanning hierarchical protection tree.

5-6.(Cancelled)

7. (Original) A computing device comprising:

a processor;

memory in communication with said processor, storing processor readable instructions adapting said device to extend a spanning hierarchical protection tree in a mesh network by:

at a current node, receiving an invitation to become a child of a first adjacent node; and

if a minimum capacity along a protection path from said current node to a root node of the spanning hierarchical protection tree which visits the first adjacent node is greater than a minimum capacity of any existing protection path from said current node to said root node, designating said first adjacent node as a primary parent of said current node in said tree.

8. (Original) The computing device of claim 7, wherein said instructions further adapt said device to:

if said minimum capacity along said protection path from said current node to said root node which visits the first adjacent node is greater than said minimum capacity of any existing protection path from said current node to said root node, send from said current node an invitation to become a child of said current node in said tree to each adjacent node of said current node that is not said first adjacent node.

9. (Original) The computing device of claim 8, wherein said memory further comprises instructions adapting said device to:

if said minimum capacity along said protection path from said current node to said root node which visits the first adjacent node is not greater than said minimum capacity of any existing protection path from said

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current node to said root node, designate said first adjacent node as a backup parent of said current node in said tree.

10. (Original) The computing device of claim 9, wherein said backup parent is one of a number of backup parents of said current node, each one of said number of backup parents having a priority based on a minimum capacity of a protection path from said current node to said root node which visits said one of said number of backup parents, with a higher minimum capacity being associated with a higher priority.

11. (Original) The computing device of claim 10, wherein said instruction further adapt said device to ensure that said designating of said first adjacent node as a primary parent of said current node does not introduce a loop into said spanning hierarchical protection tree.

12 - 15. (Cancelled)

16. (Original) A computer readable medium storing computer software that, when loaded into a computing device, adapts said device to extend a spanning hierarchical protection tree in a mesh network by:

at a current node, receiving an invitation to become a child of a first adjacent node; and

if a minimum capacity along a protection path from said current node to a root node of the spanning hierarchical protection tree which visits the first adjacent node is greater than a minimum capacity of any existing protection path from said current node to said root node, designating said first adjacent node as a primary parent of said current node in said tree.

17. (Original) The computer readable medium of claim 16, wherein said software is further capable of adapting said device by:

if said minimum capacity along said protection path from said current node to said root node which visits the first adjacent node is greater than said minimum capacity of any existing protection path from said current node to said root node, sending from said current node an invitation to become a child of said current

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node in said tree to each adjacent node of said current node that is not said first adjacent node.

18. (Original) The computer readable medium of claim 17, wherein said software is further capable of adapting said device by:

if said minimum capacity along said protection path from said current node to said root node which visits the first adjacent node is not greater than said minimum capacity of any existing protection path from said current node to said root node, designating said first adjacent node as a backup parent of said current node in said tree.

19. (Original) The computer readable medium of claim 18, wherein said backup parent is one of a number of backup parents of said current node, each one of said number of backup parents having a priority based on a minimum capacity of a protection path from said current node to said root node which visits said one of said number of backup parents, with a higher minimum capacity being associated with a higher priority.

20. (Original) The computer readable medium of claim 19, wherein said software is further capable of adapting said device to extend a spanning hierarchical protection tree in a mesh network by ensuring that said designating of said first adjacent node as a primary parent of said current node does not introduce a loop into said spanning hierarchical protection tree.

21. (Currently Amended) A computer readable medium storing computer software that, when loaded into a computing device, adapts said device to reconnect a node disconnected from a spanning hierarchical protection tree in a mesh network to the spanning hierarchical protection tree by:

designating a backup parent of said disconnected node in said tree to be a primary parent of said disconnected node in said tree; and

from said disconnected node, sending an invitation to become a child of said disconnected node in said tree to each adjacent node of said disconnected node that is not said primary parent, said invitation providing an indication of a

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minimum capacity of a protection path to a root node of the spanning hierarchical protection tree which visits said disconnected node.

22. (Original) The computer readable medium of claim 21, wherein said software is further capable of adapting said device by:

for each said adjacent node:

- if said minimum capacity along a protection path from said auxiliary node to said root node of the spanning hierarchical protection tree which visits said adjacent node is not greater than said minimum capacity of any existing protection path from said auxiliary node to said root node, designating said adjacent node as a backup parent of said auxiliary node in said tree.

23. (Original) A computer readable medium storing computer software that, when loaded into a computing device, adapts said device to connect an auxiliary node to a spanning hierarchical protection tree in a mesh network by:

receiving an invitation from each adjacent node of said auxiliary node for said auxiliary node to become a child of said adjacent node; and
designating as a primary parent of said auxiliary node the one adjacent node that is visited by a protection path from said auxiliary node to a root node of said spanning hierarchical protection tree whose minimum capacity is at least as large as the largest minimum capacity of all existing protection paths from said auxiliary node to said root node.

24. (Original) A computer readable medium storing computer software that, when loaded into a computing device, adapts said device to connect an auxiliary node to a spanning hierarchical protection tree in a mesh network by:

requesting an invitation from each adjacent node of said auxiliary node for said auxiliary node to become a child of said adjacent node;
from each said adjacent node, receiving an invitation to become a child of said adjacent node; and
for each said adjacent node:

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if a minimum capacity along a protection path from said auxiliary node to a root node of the spanning hierarchical protection tree which visits said adjacent node is greater than a minimum capacity of any existing protection path from said auxiliary node to said root node:

designating said adjacent node as a primary parent of said auxiliary node in said tree; and

from said auxiliary node, sending an invitation to become a child of said auxiliary node in said tree to each further adjacent node of said auxiliary node that is not said primary parent adjacent node.

25-27. (Cancelled)